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ABSTRACT

The potentials and problems presented by the thesis of philosophy and their relationship to educational research and practice are discussed. The question of whether philosophy can have a unique thesis is examined. It is suggested that the thesis of philosophy asserts the creation of meaning as an ongoing project that must be constantly monitored. Divergent approaches to this thesis are illustrated in the work of H. G. Gadamer and J. Derrida. The most obvious way in which the thesis of philosophy bears on educational research and practice is that educators are deeply involved in the study of meaning. The field of testing provides an example of a fundamental way in which philosophy's thesis can improve educational research and practice. Learning could become motivated by the teacher and the learner's own curiosity; testing could become a matter of investigating the inquiry that is constitutive of learning with that constitutive of measurement. The author suggests that Rasch's measurement model is in tune with the thesis of philosophy. A 54-item list of references is included. (SLD)

The Thesis of Philosophy and Its Place in Educational Research and Practice

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Questions Concerning The Thesis of Philosophy and Its Place in Educational Research and Practice

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The Thesis of Philosophy

What is the thesis of philosophy?

Gadamer (1989, p. 405) remarks that philosophy began in ancient Greece with the observation that names are not the things for which they stand. In his deconstructive analysis of the play of metaphoric figures in language, Derrida (1972, p. 273; 1982, p. 229; also see Ricoeur, 1977, p. 293 and Dallmayr, 1984, p. 180) says that "it must be noted that the sense aimed at through these figures is an essence rigorously independent from that which transports it, and that this is already a philosophical thesis, one could even say the *unique* thesis of philosophy[1]." Though the separation of signifier from signified played a part, in different ways, in the philosophical work of several of Plato's precursors, especially Parminedes, Heraclitus, Pythagoras, and Socrates, it was Plato who articulated the practical implications of this insight, thereby introducing rigor in geometry and opening up all the possibilities from which science would unfold. The purpose of this paper is to elaborate upon the potentials and problems presented by philosophy's thesis, and to relate these to educational research and practice.

How could philosophy be said to have a *sole* or *unique* thesis?

Philosophy is not widely understood today as having its own unique area of research; its thesis was usurped by the success with which science has been able to establish the spheres in which the separation of signifier from signified can be objectively demonstrated. The technical success of science has often been understood, in an essentially positivistic way,

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[1] "...il faudrait poser que le sens vise a travers ces figures est une essence rigoureusement independante de ce qui la transporte, ce qui est une *these*, deja, philosophique, on pourrait meme dire l'*unique these* de la philosophie...."

as following from an absolutely objective separation of figure from meaning. Descartes admitted that we must first know what is to count as experience and knowledge before we can observe anything, but, he said, this is a trivial matter unworthy of consideration; philosophers merely over complicate philosophy with such matters. After this, depending upon your point of view, philosophy either fragmented into various personal approaches to life, none of which could command any special authority over anything, or it became identified with the positivist assertion of an absolute separation of figure from meaning. The failure of positivism has given rise to various poetic excursions on the ends of philosophy; these ends ambiguously including both the demise of philosophy's thesis altogether *and* the transformation of philosophy's ends from absolute to probabilistic knowledge.

What is the meaning of this thesis, exactly? What role has it played in the history of philosophy and science? Gadamer (1980, p. 100), paraphrasing Plato's *Republic* (510d, 527a-b) and *Seventh Letter* (342b), explains:

> Plainly no previous knowledge of the doctrine of ideas or of the dialectic of concepts is required to see that a circle is something different from the circular things which we call round, curved, oval, orbicular, etc., and which we can see with our eyes. It is clear to us that the figure which we draw to illustrate a mathematical relationship visually is not the mathematical relationship itself, and clearer still that the circular objects in nature are not to be confused with the circle of mathematics....
>
> Geometry requires figures which we draw, but its object is the circle itself.... Even he who has not yet seen all the metaphysical implications of the concept of pure thinking but only grasps something of mathematics ... knows that in a manner of speaking one looks right through the drawn circle and keeps the pure thought of the circle in mind.

It is because of the way that mathematical and geometrical figures separate from the meaning they carry that Plato required mathematical training of the students admitted to

his Academy. Rather than being concerned with a mere capacity for calculation, Plato stressed mathematical training in order to keep philosophy in the closest possible contact with the things themselves. Because mathematical and philosophical discourses share the same object of elucidating the things themselves, Heidegger (1967, p. 76) regarded the metaphysical implications of pure mathematical thinking as the fundamental presuppositions of all 'academic' knowledge. Clear thinking is a matter of being able to look right through particular representations at the things themselves, and as such is fundamental to all scientific research, no matter what sort of phenomena that research pertains to.

Because of the need to constantly monitor the extent to which figure and meaning separate, the rigor of geometry "was an indispensable preliminary to the study of philosophy" (Scott, 1960, p. 20) not only for Plato, but for Husserl as well:

> The mathematical object seems to be the privileged example and most permanent thread guiding Husserl's reflection. . . . [on phenomenology] because the mathematical object is *ideal*. Its being is thoroughly transparent and exhausted by its phenomenality (Derrida, 1978a, p. 27; original emphasis).

Husserl takes up the problem of mathematical objectivity in order to begin to overcome science's "loss of meaning for life," which came about through Galileo's "fateful omission" of the means by which nature came to be described mathematically (Husserl, 1970). The "great gap which separates the new [Galilean] science from its classical [Platonic] original" was that the mathematics of modern science was seen as strictly numerical, devoid of the moral, political, aesthetic implications pursued by Plato (Marcuse, 1974, p. 230).

Burtt (1925) traces the history of how humanity was written out of the natural universe, showing how the Pythagorean metaphysics ascribed to Plato in the Middle Ages, Renaissance, and Enlightenment placed the essence of mathematical being in number,

thereby allowing the Pythagoreans' ontological confusion (Gadamer, 1980, pp. 32. 35, 99-101) to become insinuated throughout the metaphoric structure of language. The effectiveness of modern mathematics took on such force that philosophy came to be irrelevant and unneeded in face of the seeming self-evident way figure separates from meaning. Science will not regain its meaning for life, however, until the contemporary and ancient senses of mathematics are reconnected in the form of a critically constit. ·d domain of human, moral and cultural investigation. Gadamer (1981, p. 150) points the way toward such a "demythologization of science" throughout his work by emphasizing that

> Language and thinking about things are so bound together that it is an abstraction to conceive of the system of truths as a pregiven system of possibilities of being for which the signifying subject selects corresponding signs. A word is not a sign that one selects, nor is it a sign that one makes or gives to another; it is not an existent thing that one picks up and gives an ideality of meaning in order to make another being visible through it. This is mistaken on both counts. Rather the ideality of the meaning lies in the word itself. It is meaningful already. But this does not imply, on the other hand, that the word precedes all experience and simply advenes to an experience in an external way, by subjecting itself to it. Experience is not wordless to begin with, subsequently becoming an object of reflection by being named, by being subsumed under the universality of the word. Rather, experience seeks and finds words that express it. We seek the right word -- i.e., the word that really belongs to the thing -- so that in it the thing comes into language. Even if we keep in mind that this does not imply any simple copying, the word still belongs to the thing insofar as a word is not a sign coordinated to the thing ex post facto (Gadamer, 1989, p. 417).

Thus philosophy's thesis is not concerned simply with the *separation* of signified and signifier, but also with their *convergence*, and this is not something decided and acted upon by a subject separated from a pre-existing world, but is itself constitutive of the world in which the subject finds itself. This does not change the fact, though, that the more a sign-thing is exhausted by its coordination, the more cleanly the signifier separates from the signified. The problem philosophy faces is first of all one of determining whether a

measure of convergence and separation can be invented or discovered, and then how much convergence justifies decisions and actions based on the attendant separation. To invent or discover a measure of the constitutive interplay and independence of figure and meaning appears impossible when approached in light of the historical and cultural relativisation of discourses; but when it is remembered that Plato did not distinguish the dialectic from mathematics (Lasserre, 1964, p. 28), resources for the resolution of the problem come into focus. The wider, moral sense of mathematics includes the possibility that a measure of convergence and separation can be simultaneously re-invented and rediscovered within any specific context by those who find themselves in it. The thesis of philosophy is increasingly an approach to the creation of meaning as an ongoing project that must be constantly monitored.

What shape does philosophy's thesis take in the contemporary philosophical scene?

Though philosophy's thesis is currently being pursued in many different directions, two in particular appear relevant to educational research and practice. Each of these begins from Husserl's effort to account for Galileo's "fateful omission" and from Heidegger's subsequent effort to put on record what Descartes considered too simple to require enumeration. Though these efforts are very different in important respects, Heidegger retained Husserl's phenomenological method, as do each of the two following modifications of philosophy's thesis. This method is marked by a fundamental change in philosophy's thesis; instead of taking the world as existing apart from a self-conscious subject, as if the meaning of things was simply given and not negotiated or managed in any way,

phenomenology acknowledges the intimate interplay of thing and thought, of figure and meaning, of thinking and being, that precedes and structures discourse. The important differences between the following two articulations of philosophy's thesis is how they position themselves within the playfully flowing convergence and separation of figure and meaning.

First, Gadamer takes up what could be called the optimistic direction out of Husserl and Heidegger, describing the way that truthful separation of figure from meaning playfully follows from a critically constituted hermeneutic attitude. Gadamer disdains the possibility that truth could be produced methodically, but takes play as the primary ontological clue that can help us enter into and persist in productive dialogues. Even though he points out that all concepts are metaphorically constituted (Gadamer, 1989, pp. 75, 429; Ricoeur, 1977, p. 22) and that hermeneutic philosophy is most importantly a willingness to persist in questioning (Gadamer, 1989, p. 362-379), Gadamer is widely considered to not take these issues seriously enough, to be insufficiently suspicious of the interests and prejudices constitutive of whatever is recognized as truth in a particular context (Habermas, 1986; Caputo, 1987, p. 261; Hoy, 1978; Crowell, 1990; Dallmayr, 1987; Michelfelder and Palmer, 1989). In Gadamer's defense, it must be recognized that communication of any kind, even the communication of a deconstruction, must at some point suspend disbelief and admit that something is being signified (Ricoeur, 1977, p. 293; Gadamer, 1986; Hans, 1980; Kauffmann, 1990, p. 192; Derrida in Wood and Bernasconi, 1988, p. 88); his description of the way that understanding follows from this point is therefore justified.

Second, much of the current work being done in philosophy shares Derrida's goal of taking up a position where the independence of figure from meaning is difficult to ascertain (Derrida in Wood and Bernasconi, 1988, p. 88). Derrida takes up a pessimistic direction from Husserl and Heidegger completely opposite Gadamer's, emphasizing the free play of the signifier and signified in the metaphoric constitution of concepts at the expense of any notion of truth (Derrida, 1978b). In contrast to those who would turn deconstructive strategies into mere sophistry, however, Derrida has made it plain that there is "nothing antiscientific ... in the questions I have posed" (Derrida in Wood and Bernasconi, 1988, p. 93). In fact, the success of Derrida's strategies would be an important step toward a more critically oriented, and thus more objective, science to the extent that we must accept that there is no choice between positivist or postpositivist forms of philosophy's thesis in the contemporary academic context. Derrida wants to open up the academic world to the abyss beneath reason, an abyss that exists in place of the ground academia presumes; to do this, however, is not to be set up "in opposition to the principle of reason, [or to] give way to 'irrationalism'" (Derrida in Caputo, 1987, p. 235). The imposition of forms of authority external to the discourses of the classroom and laboratory have become a fact of life that we can only try to undermine from within by means of constantly playing out new forms of authority indigenous to the local context. The meaningfulness and effectiveness of these alternative discursive strategies will then challenge the powers that be, possibly displacing them until the new and indigenous also becomes ripe for renewal.

Derrida therefore admits not offering any choice between the boundless play of signifiers and the imposition of limits by an authority that would presume to end the game

by institutionalizing reason. However, Derrida thereby indicates that the path between rushing too quickly toward either the unity or the disunity of meaning may be an ethical one, and this is the direction taken up by Caputo (1987, pp. 272-278) and Crowell (1990), following Levinas (1969; also see Derrida, 1978c; Bernasconi, 1987). By giving priority to the ethics of facing others, truth comes to depend upon justice: a justification of the signified in which the signifier comes to the aid of discourse, attends its own manifestation, and "'comes to the assistance' of the word in an 'ever recommended effort of language to clarify its own manifestation'" (Levinas, 1969, p. 97 in Crowell, 1990, p. 358). This is similar to Gadamer's emphasis on the way the thing itself playfully gives rise to ever new questions in our efforts to really consider the weight of the other's opinion (Gadamer, 1989, p. 367), but Levinas differs from Gadamer in stressing that clarity in communication is given by the ethics of the relation in which the other attends to and judges the appropriation of meaning, the independence of sense from referent (Crowell, 1990, p. 358). In this way it becomes possible to come together with others in terms that do not domesticate the foreign and strange but allows them to remain unknown; it also forestalls, but does not obliterate, the need for further deconstructive suspicion, and leads toward a sort of "dialogical experimentalism" (Kauffmann, 1990) or "narrative experiment" (Ormiston and Sassower, 1989) in which the local convergence and separation of figure and meaning are measured and tested for their capacity to endure within a larger environment made up of similar specific contexts. Such is the nature of the dialogical science appropriate to educational research and practice.

The Place of Philosophy's Thesis in Educational Research and Practice

What does philosophy's thesis have to do with educational research and practice?

The most obvious way in which the thesis of philosophy bears on educational research and practice is that educators are those most caught up in Plato's mathematical metaphysics of academia. The supposition that things can be taught and learned requires a more rigorous convergence and separation of figure and meaning than that which is presumed to hold in everyday conversation. The metaphysical presuppositions of academia become even more pointed when it is remembered that tests are administered for no reason except in order to establish that an understanding independent of particular problems, lessons, students, teachers, or schools has been achieved. In the same way, educational research of any kind is done only to measure, qualitatively or quantitatively, the differing extent to which meanings do or do not separate from figures according to individual differences in problems, lessons, students, teachers, classrooms or schools. In the same way that a geometrical diagram gives a clear view on the thing itself, educational materials must give a clear view of the object of discourse negotiated in the classroom.

Thus the question arises as to how we are to attend to the ethical task of dialogical experimentation, which is akin to the constant task of making the scientific theme secure by checking our presuppositions against the things themselves (Heidegger, 1962, p. 195; Gadamer, 1989, pp. 266 and 367). Contrary to the facile dismissal of testing (and even all quantitative assessments or evaluations) as inherently one-sided and imperialistic impositions of a masculine rhetoric, the contemporary debate on the thesis of philosophy

forces us to realize that oppressed constituencies are always engaged in ways of making sense out of their situation, of devising strategies for coping with situations too large for them even to pretend to control directly (Comaroff 1985; Woods 1989). The traditional conception of education as a one-way flow of information from the master to the novice "tends to induce researchers to underestimate the two-way processes that regulate communication between teacher and learner" (Perret-Clermont and Schubauer-Leoni 1989, p. 579). More researchers are recognizing that learning is a negotiation of meaning (Carraher 1989, Woods 1989, Voigt 1989), "an articulation of the object of discourse" (Schubauer-Leoni, et al 1989), and that its direction might be most productively ruled from within the educational dialogue itself, not from without by an authority external to the interchange.

How could philosophy's thesis be used to improve educational research and practice?

When Kant, Lord Kelvin and others made pronouncements concerning the necessity of mathematics for rigor in thinking, they did not mean a mere use of number but intended to promote the clear articulation of the things themselves that results from the dialectical convergence and separation of figure and meaning. However, measurement in virtually every sphere of social research too often ignores the necessity of justifying the use of particular figures as representative of a body of meaning. According to the ethics of the relation to the other, however, this would appear to be a relinquishment of responsibility for listening to what the other has to say, for coming to mutually agreeable terms, and for allowing the signifier to come to the aid of discourse.

In education, such a relinquishment of responsibility amounts to sticking to theories without dialogically testing them against the phenomenon itself. To be irresponsible in this way is to deny that one has the ability to respond to the other -- the student -- in the face of the fact that the denial itself affirms the ability to respond. So what is it to dialogically test theories against the things themselves in a way that makes the mathematical metaphysics of education explicit? Qualitatively speaking, whenever people give themselves up to a topic such that it directs the course of their interaction, and they have no goal other than remaining in contact with each other in relation to the topic, metaphysics is overcome. Insofar as the convergence and separation of signifier and signified are constantly checked in situations such as this, metaphysics is not something to which we blindly acquiesce, as is the case when we positivistically ignore it, or presume it to be nonsense (Burtt, 1925, p. 225).

Overcoming metaphysics, then, is not a matter of leaving it behind, but of recognizing its determinative necessity and allowing it to have its place even as it is always critically evaluated. To do this is to overcome the hidden metaphysics of science not only by cancelling it, but by elucidating it, taking it up and using it, as Gadamer says (1976b, p. 240, 1976a, pp. 100-101). Metaphysics is not something that is just overcome in the sense that it is abandoned and left behind because "a regard for metaphysics still prevails even in the intention to overcome metaphysics. Therefore, our task is to cease all overcoming and leave metaphysics to itself" (Heidegger, 1972, p. 24, also see pp. 55-73). In leaving metaphysics to itself, we learn to live with it, as we do with death and all the implications of finitude.

The way a topic plays itself out in the course of a dialogue is an important clue to how the wider, moral sense of mathematics can be left to itself in educational research and practice. By allowing the coordinated unity of figure and meaning to lead the way, the strain of initiating the game is lifted from us; because this strain is what constitutes the primary burden of existence (Gadamer, 1989, p. 105), being released from it has an important entertainment value. As a topic plays itself out through the participants in a dialogue, it is entertained for what it is worth; in the same way that players give themselves up to a game, letting it play itself out through them more than they consciously toy with it (Gadamer, 1989, pp. 101-134; Carse, 1986), to entertain an idea is more fundamentally a matter of being entertained by it. Our imaginations are captured by language in such a way that they are never able to extricate themselves from the interplay of texts, but can only circularly spiral along after them, creating new meanings in terms of the old along the way. In the process and product of creating and re-creating meaning by following the lead of the thing itself, as if it was a ball that seems to have a will of its own, relaxation and recreation are experienced as a part of belonging to a language community.

It is through an appreciation of the entertainment value offered by a topic that philosophy's thesis could be used to improve educational research and practice. Derrida points out that

> There are thus two interpretations of interpretation, of structure, of sign, of freeplay. The one seeks to decipher, dreams of deciphering, a truth or an origin which is free from freeplay and from the order of the sign, and lives like an exile the necessity of interpretation. The other, which is no longer turned toward the origin, affirms freeplay and tries to pass beyond man and humanism, the name man being the name of that being who, throughout the history of metaphysics ... has dreamed of full presence, the reassuring foundation, the origin and the end of the game (1978b, pp. 292-293).

If truth must be a form of objectivity that ends the game, it is best forgotten. Gadamer and Levinas, however, show that there is a constancy to that which wells up between us. Where Derrida offers no means of restricting the freeplay of signs, even though writing itself intends such a restriction, Gadamer points out that questions are bound by the horizons of what is opened up through them (Hans, 1980, p. 303). In other words, questions *point* and they do so in a particular direction. To ask a slanted question is to point away from the object of discourse toward another, often with the unethical goal of misleading one's interlocutor. The truth of the matter is delineated by questions that pertain to the object, and unfold in the course of the object's self-representative play, and this is why Gadamer is able to explicate a more accurate account of the play of signifiers than Derrida (Hans, 1980, p. 317).

The contrast between the two-sided, dialogical approach and the one-sided, monological approach to validating and justifying interpretations is forcefully presented by Jaeger (1987) in his Presidential Address to the National Council on Measurement in Education, wherein he comments on contemporary debates in educational measurement. Jaeger (1987, p. 8) has juxtaposed two quotes that mark the ends of the continuum along which points in the contemporary debate on educational measurement are made:

> There appears to be a fundamental difference in measurement philosophy between those on the two sides of the Rasch debate .... The difference is well characterized in the writings of Benjamin Wright (1968) and E. F. Lindquist (1953). First Wright:
>
> > Science conquers experience by finding the most succinct explanations to which experience can be forced to yield. Progress marches on the invention of simple ways to handle complicated situations. When a person tries to answer a test item the situation is potentially complicated. Many forces influence the outcome - too many to be named in a workable theory of the person's response. To arrive at a workable position, we must invent a simple conception of what we are willing to suppose happens, do our best to write

> items and test persons *so that their interaction is governed by this conception* and then impose its statistical consequences upon the data to see if the invention can be made useful. (1968, p. 97) [emphasis added].

In contrast, Lindquist wrote:

> A good educational achievement test must itself define the objective measured. This means that the method of scaling an educational achievement test should not be permitted to determine the content of the test or to alter the definition of objectives implied in the test. From the point of view of the tester, *the definition of the objective is sacrosanct*; he has no business monkeying around with that definition. *The objective is handed down to him* by those agents of society who are responsible for decisions concerning educational objectives, and what the test constructor must do is to attempt to incorporate that definition as clearly and exactly as possible in the examination that he builds. (1953, p. 35) [emphasis added].

Despite the seemingly objectivistic tone of his language regarding the way "science conquers experience" and "progress marches," Wright is explicitly appealing to the inevitability of the way we create meaning and interpret situations by focusing our attention on what can be manageably represented. An effort must be made to formulate guesses, "what we are willing to suppose happens," and submit these in the form of questions and answers to the ruling imposed by the thing itself as it plays itself out through their interaction, and then to examine the data for signs concerning the extent to which this effort has been successful. And in opposition to the apparent objectivism of this passage, Wright has elsewhere written that "there are no natural units. There are only the arbitrary units we construct and decide to use for our counting" within a particular frame of reference (Wright and Masters 1982, p. 9).

When the interactive question and answer process can be governed by a single, simple conception of a line of inquiry, data live up to the requirements of fundamental measurement, the meaning of something has been successfully negotiated, and an object of discourse has been articulated in terms of arbitrary units we can count on, such that

decisions concerning student ability and item difficulty can be made with more confidence than had the data not been deliberately constructed and examined for such a structure. Not only are decisions made more confidently, but this confidence is accompanied by a more humble willingness to admit new evidence as the situation changes; experience may conquer science more frequently than vice versa, and progress may dance, leap and flow more than it marches, but this does not alter the fact that the time we share together along a stretch of life's path is marked only by the meanings that emerge from between us (Ricoeur 1984, 1985).

In contrast, Lindquist explicitly appeals to an authority on high that hands down definitions and objectives, asserting that methods can be prevented from determining content in direct opposition to everything the philosophy, history and sociology of science has to say on the matter. Such is the position also assumed by Divgi (1986), Whitely and Dawis (1974) and Wood (1978); Goldstein (1979, p. 218) is particularly adamant in his opposition to the use of Rasch and Wright's ideas on fundamental measurement, saying "that the criteria which properly ought to determine the content of an educational test are primarily educational rather than statistical," a comment like Lindquist's opening line that can be superficially construed to appear in accord with a concept of authority as emerging from within the relations studied. Goldstein and Lindquist are, however, trying to deny that methods play any role in the determination of content, as if it is possible to measure by decree, or to legislate in committee what shall count as a valid construct. Lindquist and Goldstein are correct in saying that the test must itself define what is measured, but they fail to ask just what the test is, assuming that it is what the experts say it is and not what is played out by the community of speakers participating in the language game. This is to deny that questioning inherently follows after an object always already implied in the interplay of social relations, and to assert that a line of questions can be made reliable and

valid for measuring ability without entering into the circular and mutual implication of subject and object. Lindquist and Goldstein presume that fundamental measurement procedures are just another statistical technique or methodology; if this was the case, their argument might hold some water, but what makes these measurement procedures fundamental is that they are a model of how things come to a stand in the flow of experience. That nothing ever comes to an absolute and immovable halt only means that we must be more vigilant in the attention we accord the flow.

Jaeger's helpful contrast of two common approaches to testing points at a fundamental way in which philosophy's thesis can be used to improve educational research and practice. Instead of allowing institutionalized reason to force its preconceptions concerning the object of classroom discourse upon the student-teacher relation, this relation itself could be allowed to take its own course so long as it sticks to its own delimitation of the topic. Learning would then cease to be the mere ingestion and regurgitation of materials and would become motivated by the teacher and learners' own curiosity. Testing would not be so much of a matter of leaving behind markers, but a matter of integrating the inquiry constitutive of learning with that constitutive of measurement. Tests would cease to be occasions of anxiety, being recognized instead as opportunities for showing how much is known and for learning what aspect of a topic to take up next. Teaching to the test would become a moot issue, since the phenomenon and not a particular ideological formulation of it would be the object of discourse. All of these points have been made before in various ways, but their common relation to the philosophical metaphysics of education has gone unnoted.

How could educational research and practice do more to embody philosophy's thesis?

Education could become a form of social recreation, analogous to walking and talking, by doing more to experimentally entertain topics for their value within the dialogical relation between teacher and learner. The recreative and transformative aspect of entertainment value would follow from the way learning lightens our existential burden by absorbing us deeper into the play of sign-things. This does not happen in most educational contexts because curricula are usually structured according to theories that have not been tested against the way the topics actually play themselves out in the classroom, as has been shown by Wilson (1989a, 1989b, 1990). For instance, theories of task difficulty that are used to structure curricula must be tested, by means of engaging in a question and answer exchange with the students involved, if we are to avoid the unethical implications that attend the implementation of low quality educational materials. Wilson (1989a, 1989b, 1990) shows how theories of learning structures can be improved by opening them up to a dialogical encounter with the data that emerges from their exposure to students.

Wilson begins from a probabilistic approach to the independence of figure from meaning (Rasch, 1960), as was described in the quote from Wright cited by Jaeger. This formulation of philosophy's thesis allows him to move away from the assumption or assertion of an absolute independence of figure from meaning to the extent that it 1) does not try to resist but goes along with the circular, playful flow that structures interpretation (Rasch, 1960, p. 110); 2) allows for the possibility that chance events will disrupt that flow (Rasch, 1960, p. 11); 3) does not try to stop the play by imposing an origin, an absolute zero or beginning to the story being told (Wright and Masters, 1982, p. 9); and 4) does not assert its own truth, but is willing to be left on trial (Rasch, 1960, pp. 37-38), to be constantly tested for the capacity to provide a framework for participation in community life that is sensitive to the ethical aspects of being one among many and many in one.

Wilson (1989b) shows how Rasch's hermeneutically apt and phenomenologically rich measurement model can provide decisive information on the structure of learning hierarchies that can then be used to refine theories and define curricula. By delineating the line of inquiry as it emanates from within the interplay of question and answer, it becomes possible to correct and re-correct theoretical guesses as to item categories and difficulties. Wilson (1989b, p. 357) examines "a learning sequence in subtraction based on the learning hierarchy theory of Gagne (1968)." The study shows, in effect, that prior research in this area has been confounded by its metaphysical presuppositions, these being that learning hierarchies could be usefully studied by means of methods that did not allow the thing itself to dominate the question and answer process but which inevitably sought to impose THE THEORY on the relations studied from an Archimedean point outside of their interaction. In contrast, Rasch's approach takes individual differences into account, and so allows the others (those measured) to judge the appropriateness of the questions asked. This in effect provides the examinees with the power to show that figure and meaning have not coordinated and separated.

For instance, the question as to why so many learners did not behave in a manner consistent with the postulated hierarchies led to the use of increasingly sophisticated statistical techniques for "validating" the hierarchies, and to the lowering of expectations concerning the possibility of delineating the hierarchies (Wilson, 1989b, pp. 358-359). Wilson (1989b, pp. 360-363) shows that these events followed from the researchers' attempt to force the data to conform to the theory of hierarchies by means of measurement models that one-sidedly defined in advance what would count as a legitimate response to a question. Throughout the history of the research surveyed, this approach resulted in large numbers of "unscalable" respondents, meaning that the phenomenology of the learning

sequence was insufficient for testing the extent to which students adhered to it, as well as for testing the extent to which the theory described it.

In a masterly display of the simplicity, elegance and parsimony of fundamental measurement, Wilson shows how the learning objectives and the students' test results could be better understood by placing them in the mutually critical relation demanded by Rasch. Because of the circular, probabilistic formulation Rasch brought to measurement, Wilson was able to virtually eliminate the problem of unscalable responses, observe the empirical order of the learning objectives, and rethink the theory of learning hierarchies accordingly. The overall result was to bring the order of learning objectives more in line with the order in which they are easiest to learn, to observe when and where this order applied (as well as when and where it might not), and to provide "a framework for discussing the behavioral meanings of differing levels of attainment in a learning sequence" (Wilson, 1989b, p. 370). Of course, unless academic frameworks live up to their metaphysical presuppositions, meanings do not converge with or separate from the figures transporting them; when those figures are items on a test and responses to these items, our unwillingness to test our guesses as to the convergence and separation of figure and meaning contradicts the metaphysical conditions of the possibility of education. Though new contradictions are sure to arise with the negation of this one, there are few projects more worthwhile than aiming to revive the ancient relation of philosophy and mathematics in education.

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